DOCUMENT RESUME

ED 231 862 TM 830 412

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TITLE Critical Ingredients of Successful Demonstration Programs.
PUB DATE Apr 83
NOTE 16p.; Paper presented at the Annual Meeting of the American Educational Research Association (67th, Montreal, Quebec, April 11-15, 1983).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Case Studies; Cost Effectiveness; *Demonstration Programs; Field Tests; Interviews; Observation; Program Effectiveness; Program Evaluation; *Research Utilization; *Resource Allocation; *Site Analysis
IDENTIFIERS *Appalachian Regional Commission DC; *Stakeholders; Stakeholder Survey

ABSTRACT

The findings from a series of case studies of nine successful demonstration programs are summarized. The programs, funded by the Appalachian Regional Commission, included child development, vocational education, technology, economic development, and housing. The primary purpose of the case studies was to discover what makes programs successful. A second purpose was to provide information for replicating the programs. Conducting a series of case studies provided opportunities for cross-site analysis of critical ingredients for successful demonstration programs. Through cross site analysis, three variables consistently emerged as important: resource efficiency, user orientation, and emphasis on dissemination. This presentation elaborates on these critical ingredients of successful programs, presents related research, provides examples from the case studies, and suggests some guidelines for replicating the success of these programs. The programs include: (1) the Montour GREENHOUSE Project, Washingtonville, Pennsylvania; (2) the Home Repair Project, southeastern Ohio; (3) Joyner Heavy Equipment training in east Tennessee; (4) the Comprehensive Vocational Teacher Education Program in Mississippi; (5) Parents and Little Kids, Greenville, South Carolina; (6) Help Educate Little People (HELP), Greenville, South Carolina; (7) the Coal Industry Technical Assistance Center (CITAC) in eastern Kentucky; (8) the Technological Extension Service for Small Business and Industry, in western Maryland; and (9) Technical Assistance to Local Governments for Engineering Services in southeastern Ohio. (PN)

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# CRITICAL INGREDIENTS OF SUCCESSFUL DEMONSTRATION PROGRAMS*

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"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
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This paper summarizes some of the most interesting findings from a series of case studies of nine demonstration programs. The programs were nominated as the most successful efforts funded through the Appalachian Regional Commission during the past decade by representatives from the thirteen Appalachian states. Covering a range of topics, the programs included child development, vocational education, technology, economic development, and housing. A list of the programs, their location, funding, and purpose follows:**

1. Montour GREENHOUSE Project, Washingtonville, Pennsylvania ($1,757,000): Built a greenhouse that is heated though waste water from an adjacent power plant.

2. Home Repair Project, Southeastern Ohio ($1,528,079): Repaired substandard houses in low income areas.

3. Joyner Heavy Equipment, East Tennessee ($672,309): Trained unemployed individuals to operate and repair heavy equipment.

4. Comprehensive Vocational Teacher Education Program, Mississippi ($346,410): Provided professional development to teachers, especially those without degrees.

5. Parents and Little Kids, Greenville, South Carolina ($346,410): Provided a toy lending library and parent training on educational play.

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* This paper was presented at the annual meeting of AERA, Montreal Canada, April 11 to 15, 1983.

** The title used to refer to each program throughout this paper is underlined.

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6. Help Educate Little People HELP, Greenville, South Carolina ($127,492): Improved day care programs in low income areas using volunteers.

7. Coal Industry Technical Assistance Center CITAC, Eastern Kentucky ($671,415): Helped coal producers keep up with technological innovations and changing regulations.

8. Technological Extension Service for Small Business and Industry, Western Maryland ($218,900): Provided technological assistance to small businesses.

9. Technical Assistance to Local Governments for Engineering Services, Southeastern Ohio ($40,000): Provided engineering services to small towns.

During 1981-82 case studies of these nine programs were conducted (Adams and Halasz 1982). The case study typically consisted of a three-day site visit by two evaluators. In depth personal interviews, with program personnel and clients, direct observation of program activities and analysis of existing documents and records were employed. Although the time for on-site was brief, the case studies were carefully structured to facilitate in-depth analysis, validation of findings, and cross-site comparisons.

The primary purpose of the case studies was to discover what made programs successful. A second purpose was to provide information for replicating the programs. Conducting a series of case studies provided opportunities for cross-site analysis of critical ingredients for successful demonstration programs. Through cross site analysis, three variables consistently emerged as important. The Three major critical ingredients for success discussed in this paper are:

- o Resource Efficiency
- o User Orientation
- o Emphasis on dissemination

These findings were cross-validated through reviewing findings from a similar set of case studies of 28 exemplary vocational education projects (Adams 1980; Adams, Hull and Bragg 1983). Additionally relevant previous research from the innovation diffusion literature was reviewed.

This presentation will elaborate on these critical ingredients of successful programs, present related research, provide examples from the case studies, and suggest some guidelines for replicating the success of these programs.

## Resource Efficiency

The most frequently found ingredient of successful demonstration projects was Resource Efficiency. This can be defined as follows:

> Efficient and creative use of resources promotes demonstration projects that are likely to last over time. Four types of resources are important: (1) personal resources (e.g., time, administrative endorsement, personnel); (2) information resources (eg. support material, training, procedures); and (3) physical resources (eg. facilities, supplies, equipment); and (4) financial resources.

Without adequate time, materials, space, and equipment, teachers frequently report problems when implementing new programs (Berman and Pauly 1975; Gross, Giaquinta, and Berstein 1971). Support personnel are the most important resource for implementation of innovations. Berman and McLaughlin (1978)

explained, "To increase the likelihood that change will occur as a result of school improvement efforts, you have to involve a person whose function in part is guiding them through the experience." These "change agents" or linkers typically are teachers and intermediate-level administrators. They have the most contact with teachers implementing innovations. Intensive in-service training has consistently been identifed as an important strategy for implementation of innovations (Fullan and Promfret 1977). This strategy provides teachers with models and experiences that assist them in implementing innovations (Berman and Pauly 1975; Crowther 1972; McDonald and Walker 1974). Efficient use of time is important. In a massive study of dissemination efforts that support school improvement, Crandall et al. (1982) found that the major factor producing change in classroom practice was the amount of classroom time spent on the new practice.

Rosenblum, and Molitor (1981) in a national study of research and development utilization, found in-kind contributions from the adopting site (eg. release time) to promote implementation. Results from this study suggest that staff release time and training by an external agent can significantly affect the degree to which schools implement innovations.

Costs of adopting an innovation may be reduced by sharing expenses across agencies. Three of the demonstration programs studied increased their access to resources by coordinating multi-agency funding.

- The HOME REPAIR project efficiently coordinated funds from five different agencies: Community Services Adminstration, Appalachian Regional Commission, CETA, Department of Energy, and Administration on Aging. Since much of each agency's funding was earmarked for specific purposes, and all the agencies had different funding cycles, creative management was necessary to keep the project monies flowing. The five agencies had different goals, different forms, different reporting requirements, and different expectations. One strategy used to manage multi-agency funding was streamlining and systemizing. For example, project staff packaged the steps and sub-steps required to repair homes from "obtaining referrals" to "final payback". Forms were periodically updated and combined to eliminate redundant or unused data. A system for cross-referencing budget and client service data was developed so that statistics could be aggregated for different agencies and reports.

- The GREENHOUSE project provides a second example of creative financing. The financing for the GREENHOUSE project was referred to by some, including the GREENHOUSE owner, as somewhat miraculous. It is unusual when four separate agencies, including the public and private sector, can work together to finance an effort of this type. In this case, the four finding agencies were: Appalachian Regional Commission, Pennsylvania Industrial Development Authority, Pennsylvania Power and Light Company, and Northern Central Bank. The financing of this effort provided a demonstration that the public and private sector can effectively work together to leverage $350,000 in public money for $1.4 million in private sector funding.

- Project HELP provides a third example of shared funding. This project coordinated volunteers to help day care programs in low income areas. After federal Appalachian Regional Commission funding ended, this project attracted continued local support through United Way. The project also generated donations from over twenty-five community groups, such as the Navy Reserve, church groups, Kawanis, and local firms. Project HELP was featured in the 1982 local United Way Campaign film. The local publicity has attracted many volunteers and donations. The project staff fostered local contributions by maintaining an open attitude. Any contribution, no matter how small or how difficult to handle, was accepted and made convenient for the donor. During our visit, project

staff offices were crammed with reams of colorful construction paper which recently had been donated. Lacking a suitable storage space was no detrement to accepting a donation.

Another strategy successful demonstration programs have employed is obtaining low cost or free resources. Several of the programs studied maintained low overhead by using inexpensive resources.

- The VOCATIONAL TEACHER EDUCATION project employed sixteen student interns. The interns earned course credit and were paid a nominal amount of $750 each. These interns have developed the major portion of the instructional materials and provided most of the inservice training sessions. The interns (typically teachers continuing their education) select their own topics so most are highly motivated. The interns will be continuing resource to the area. This has been a cost-effective way to provide services to a large number of people.

- The HEAVY EQUIPMENT TRAINING project is a second example of efficient resource utilization. Rather than purchasing new equipment which would have cost approximately $3 million, inoperable equipment (worth about $250,000 in 1981) was purchased. The equipment was renovated and repaired as part of the training program. The project has been able to acquire a wide variety of heavy equipment in this manner and currently houses bulldozers, road graders, truck tractors, rubber tire loaders, backhoes, scrapers, front end loaders, truck cranes, and truck loaders. In a similar view, rather than purchasing or building a modern training facility, the project is housed in an old school on a three-acre campus. The facility was provided by a local school system at no cost. Approximately $20,000 was spent on renovation, but it remains a simple structure without creature comforts for the staff or students. The primitive building and the old equipment reinforces the image that federal funds are not being wasted on this effort. The funds are being used to get on with the essential business of providing training and placing people in jobs. As a project initiator said "If we'd built a modern facility, it probably wouldn't have worked.

- A third example of cost saving practices is evident in the TECHNOLOGICAL EXTENSION project. This project provided small businesses with free expert help to improve operations and increase profits. Since the project was operated with an annual budget of only $50,000, the project has sought free consulting expertise from manufacturing sales representatives, retired experts from large corporations, and university faculty. Over three years, services have been provided to sixty small businesses valued at $1.5 million dollars in cost savings to the businesses.

## User Orientation

A second critical ingredient of the demonstration programs studied was User Orientation. This can be defined as follows:

> Representatives of relevant audiences are identified and involved in designing, testing, and using the program. The resulting product or services contains practical information organized in an easy-to-use format. Programs are mutually adapted based on users values and needs.

This criterion emphasizes the importance of conducting demonstration programs with, by, and for intended users. User orientation should consider both group and individual dimensions. In a three-year study of delivery of research-based products for school improvement by Abt associates, (Louis et al. 1982) found participation by the entire staff in a problem-solving process to be important. Products that have been identified as being "relevant" and "easy to use" have been readily adopted. Hood and Blackwell (1976) found an emphasis on interactive information gathering from local sources to be very important. Teachers and principals were more likely to use a product when they found it "likely to have the information they want" (Sieber 1981). To be

effective for primary user, R&D products should contain practical information organized into a useful format.

Use of an innovation can be enhanced by user commitment. Crandall et al. (1982) describes commitment as recognition of the importance of an innovation to one's daily professional life. Individual users' acceptance of an innovation contributes to organizational change. Crandall also identified teacher commitment as an important predictor of change in classroom practice. Sieber (1981) concured with the importance for individuals to internalize knowledge and create a sense of "ownership." He described this characteristic as a powerful incentive for change.

One important dimension of User Orientation is compatability of the program with the norms and values of the clientele being served (Rogers 1962; Rothman 1974; Zaltman 1980). Several of the demonstration projects showed strong sensitivity to client needs.

- HOME REPAIR project staff carefully developed their communication skills to work with clients who were poor, sick, old, or illiterate. Housing repair was used to link clients to a variety of other services they needed and/or qualified for, such as food stamps, free cheese, and heating assistance. During the evaluators' visit, the project director spontaneously showed a client how to sprout alfafa seeds as an inexpensive supplementary food source. Throughout the project, staff remained sensitive to various needs of the clients and referred them to other social service agencies.

- The VOCATIONAL EDUCATION TEACHER EDUCATION project adopted a philosophy of responsiveness. The project was responsive to the schedule of local schools offering more services during the peak months of May, June, and August. Project priorities were implemented in a flexible manner so that emerging client needs could be met. Compromises were made to facilitate

local involvement in project design. Emphasis was placed on taking learning to clients through courses offered at vocational schools and central locations rather than having clients come to the university. The project emphasized establishing and maintaining personal relationships with the various clients served. Several of the clients interviewed mentioned the project staff's uncanny ability to remember all the teachers by name.

- The CITAC project offered technical assistance on coal mining technology that was practical and specific to the problems of individual clients. Project staff providing technical assistance had both technical expertise and practical experience in coal mining operations in eastern Kentucky. Staff were able to translate complex chemistry into concrete advice. Project staff made it a priority to respond to requests in a timely manner and typically spent considerable time on site to assure that they understood the problem and got it resolved.

- THE ENGINEERING SERVICES project was determined to provide help despite the initial resistance of the local officials. The project engineer was willing to tackle all problems, large or small, that were presented by local officials. No requests for help were rejected. While the project engineer provided second opinions, he did not usurp the services that would have been provided by the consulting engineers. In many cases there was no money available to hire consulting engineers, but with the project engineer's help, grant monies were acquired which often resulted in consultancies for the local engineers.

A second dimension of User Orientation is client involvement Several of the programs studied have involved clients in an exemplary manner.

- In the PARENTS and LITTLE KIDS project, parental involvement was a cornerstone of the program. One of the key rules was that parents must accompany their children during the group activities. The program stressed parental interaction with their own children. The instructor started an activity and then the parents did most of the direct instruction. Parents received detailed advice for continuing learning activities at home. Some parents served as volunteer instructors for the program.

- Project HELP, another child development project, promoted independent and innovative behavior by the volunteers. Volunteers were encouraged to use their unique talents and consequently assumed much of the responsibility for making the program work. The volunteers developed highly creative and well prepared lessons. Volunteers assumed responsibility for diverse aspects of operating the Project HELP from remodeling day care facilities to handling paperwork. A buddy system in which more experienced volunteers worked with newcomers was employed in volunteer training.

## Emphasis on dissemination

A third critical ingredient of successful demonstration programs was Emphasis on dissemination. This can be defined as:

> More than one channel for conveying information about and involving clients in the demonstration program is used. Communication includes mass media (eg. direct mailing of brochures) and interpersonal channels (eg. technical assistance).

Research on the change process has shown that repeated exposure to a new idea stimulates adoption. Individuals are more likely to purchase a product if they hear about it from several sources. Once a product is purchased, multiple channels of communication can accelerate its adoption by reinforcing use. Roger's (1962) model for the diffusion of innovations was based on five stages: awareness, interest, evaluation, trial, and adoption. Each stage requires a different type of information. Subsequent diffusion models have incorporated two-way communication. The Dissemination Analysis Group (1976) described four stages in their dissemination model: spread, exchange, choice, and implementation. The "exchange" stage incorporates feedback from users, which is an important consideration in the

change process. The Havelock and Lindquist model (1980) builds two-way communication into every stage of dissemination. Emphasizing public relations and outreach is key to a successful program. Most of the program studied developed innovative strategies for expanding their visibility. Consider the following examples.

- Since PARENTS AND LITTLE KIDS was sponsored by a public library, there was a national constituency of people who were already library users. The project capitalized on this constituency through disseminating brochures and providing announcements in the library newsletter. The project participated in programs sponsored by a popular local baby store. Parents were encouraged to tell other parents about the program. The project sought and took referrals from area pediatricians, community groups, health centers, and hospitals such as Shriner's Hospital for the Orthopedically Handicapped. To attract poor or minority families to the library, the project offered outreach programs at public health clinics.

- Project staff worked to keep CITAC in the public eye. Personal communication about project activities was maintained with a mailing list of about 2,500. The seminars were frequently advertised in local papers. A nearby community college's two-year program in coal technology was a useful vehicle for attracting new clients since most of the graduates go to work for coal companies in the area. Additionally, project staff have consistently published technical articles in state newsletters to gain visibility.

- The VOCATIONAL TEACHER EDUCATION project encouraged progressive involvement of clients. As the Associate Project Director said, "Inservice opens the door to communication. We can go back to them. They can come to use." Interested clients were progressively encouraged toward more intensive activities with greater potential for long range effects, such as individualized technical assistance, intensive internships, univeristy courses, and degree programs.

- The TECHNOLOGICAL EXTENSION project was modeled after the Agriculture Extension Service in which field agents go to the potential clients rather than merely being available in an office. This outreach approach

has been successful in contacting owners of small businesses who were likely not to call consultants for solutions to problems. An attractive promotional brochure was sent to all eligible businesses in the area. Persistent calling and visits were used to gain entry to the businesses. Unannounced visits proved to be the most successful.

## Summary

A knowledge base is beginning to evolve that could enhance the payback from dollars invested in demonstration programs. This paper has identified three critical ingredients for successful demonstration programs based on case studies of nine programs. Additional qualitative research to identify and verify these and other critical ingredients that stimulate success need to be examined. The following recommendations for replication of these critical ingredients are offered.

1. Demonstration programs should maximize resource efficiency. One key way to maximize resources is to link agencies or systems so that more resources are available. Another is to implement cost-saving practices, such as using interns and volunteers; recycling used equipment and facilities; and securing donations.

2. Demonstration programs should emphasize user orientation. Creative strategies for involving users and giving them a sense of ownership are frequent in successful programs. Such strategies include personalized communication; encouraging users to innovate and adapt products; and designing programs with sufficient flexibility to respond to emerging needs of clients.

3. Demonstration programs should utilize emphasis on dissemination. Demonstration programs that maintain visibility and outreach through many different media appear to survive. Such programs tend to have more roots and linkages to maintain their stability over time. Effective communication strategies were characterized by diversity, repeated exposure, and referrals.

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